

CLAIMS

1. An electromagnetic fuel injector (1) for an internal combustion engine; the injector (1) comprising
5 a main body (4) having a central cylindrical cavity (5) adapted to act as a duct for the fuel, a valve (6) which is disposed to close an end of the central cylindrical cavity (5) in order to regulate the flow of fuel and is provided with a moving shutter (9), and an
10 electromagnetic actuator (13) which is provided with a coil (15) disposed coaxially about the central cylindrical cavity (5), a fixed armature (17) of ferromagnetic material, and a moving armature (18) of ferromagnetic material mechanically connected to the
15 shutter (9) and adapted to be magnetically attracted by the fixed armature (17) against the action of a spring (19); the injector (1) further comprising a monolithic tubular member (24) which is made from ferromagnetic material, is disposed coaxially within the central
20 cylindrical cavity (5) of the main body (4) and houses the fixed armature (17) and the moving armature (18) of the electromagnetic actuator (13); the injector (1) being characterised in that the fixed armature (17) and the moving armature (18) are made from a first
25 ferromagnetic material, while the tubular member (24) is made from a second ferromagnetic material having a lower

magnetic permeability than the first ferromagnetic material.

2. An injector (1) as claimed in claim 1, in which the monolithic tubular member (24) has an axial
5 length substantially equal to the axial length of the central cylindrical cavity (5).

3. An injector (1) as claimed in claim 1, in which the monolithic tubular member (24) houses the spring (19) of the electromagnetic actuator (13).

10 4. An injector (1) as claimed in claim 3, in which the fixed armature (17) and the moving armature (18) of the electromagnetic actuator (13) have respective central holes (21, 22) which are coaxial, have the same dimension and house the spring (19) of the
15 electromagnetic actuator (13).

5. An injector (1) as claimed in claim 4, in which the spring (19) of the electromagnetic actuator (13) is compressed between the shutter (9) and a drilled abutment body (20) which is disposed in a fixed position
20 within the central hole (21) of the fixed armature (17).

6. An injector (1) as claimed in claim 1, in which the monolithic tubular member (24) houses the valve (6).

7. An injector (1) as claimed in claim 6, in
25 which the shutter (9) of the valve (6) is welded to a wall of the moving armature (18) of the electromagnetic

actuator (13).

8. An injector (1) as claimed in claim 7, in which the valve (6) comprises a valve seat (7) having a central injection hole (8), the shutter (9) comprising a
5 plate (10) which has at least one peripheral supply hole (11) and a sealing member (12) which is circular in shape, projects from the plate (10) and is adapted to isolate the supply hole (11) from the injection hole (8) when the shutter (9) is urged to abut against the valve
10 seat (7).

9. An injector (1) as claimed in claim 1, comprising an atomiser coupled to the valve (6).

10. An injector (1) as claimed in claim 1, comprising a non-return device interposed between the
15 fixed armature (17) and the moving armature (18) of the electromagnetic actuator (13).

11. An injector (1) as claimed in claim 1, wherein between the section of the tubular member (24) and the section of the fixed armature (17) and the moving
20 armature (18) there is a ratio of 1:4.